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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/516,978

08/22/2005

Laurence Josette Messe

128905-1004

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11/05/2008

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EXAMINER

BERMAN, SUSAN W

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

11/05/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/516,978	Applicant(s) MESSE ET AL.	
	Examiner /Susan W. Berman/	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25,32-45,48 and 49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 45 is/are allowed.
- 6) ☒ Claim(s) 25,32-44,48 and 49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

The rejection of claims 25-27, 42, 43 and 46-49 under 35 U.S.C. 102(b) as being anticipated by Ogiso et al (6,106,999) is withdrawn.

The rejection of claims 25-30, 38-40, 42, 43 and 46-49 under 35 U.S.C. 102(b) as being anticipated by Bressler et al (5,694,852) is withdrawn.

The rejection of claims 46 and 47 under 35 U.S.C. 102(b) as being anticipated by Pfann et al (3,395,121) is moot since the claims are canceled.

Response to Arguments

Applicant's arguments filed 08-28-2008 have been fully considered but they are not fully persuasive with respect to the rejection of claims over Steinmann et al in view of Pfann et al. Applicant argues that Steinmann et al do not teach or suggest the instantly claimed stabilizers. It is noted that Steinmann et al teach adding stabilizers but do not mention any specific stabilizers. Applicant argues that Pfann et al teach using the disclosed boron trichloride/tertiary amine complexes as latent curing agents in amounts from 0.5 to about 10 parts per 100 parts of epoxy resin by weight. Applicant's amended claim 25 recites that the stabilizing complex is present in an amount from 0.001 wt% to 0.3 wt % in the composition. This claim language does not clearly distinguish over the teaching of Pfann et al to use 0.5 to about 10 parts boron trichloride/tertiary amine complex per 100 parts epoxy resin because the weight percent cationically polymerizable compound and/or cationic photoinitiator is not set forth in the instant claims and the comprising language of the claim encompasses additional polymerizable compounds, such as the free radically polymerizable materials set forth in claim 43.

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The comparative data in the instant specification in Table 6 for Examples 7-17 wherein boron trichloride/dimethyloctylamine complex is the “stabilizer” has been considered. The data does not clearly show an unexpected result because Pfann et al teach that the disclosed amine complex curing agents provide exceptionally long storage-life to epoxy compositions (column 1, lines 41-48). Pfann et al teach that the boron trichloride/amine complex would be expected to function as stabilizers preventing thermal cure as well as latent curing agents because Pfann et al teach that the disclosed curing agents provide exceptionally long storage life and are activated by light to act as curing agents. In any case, the only claim commensurate in scope with the showing relied upon is claim 45. The data for compositions of only epoxy resin and cationic photoinitiator to which one of the claimed complexes is added in Examples 24-59 does not support the recitation of 0.0001 to about 0.3 wt % stabilizer in the instant claims because it does not establish a criticality for 0.3 wt % compared with 0.5 wt % taught by Pfann et al.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 25, 32-44, 48 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bressler et al (5,694,852) in view of Pfann et al (3,395,121). Bressler et al disclose formulations for printing comprising cycloaliphatic epoxide resins that can be UV curable and/or heat curable. A dual curable embodiment wherein the composition comprises a

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spiroorthocarbonate or spiroorthoester that is cationically polymerizable, a photocatalyst such as triphenyl sulfonium hexafluoro antimonate, and a boron trihalide/tertiary amine complex curing agent in 'catalytic amounts' is taught from column 13, line 46, to column 14, line 6. A di- or tri-functional acrylate can be added to the mixture. The spiroorthocarbonate or spiroorthoester is a reaction product of the epoxide with a lactone. The boron trihalide/tertiary amine complexes would be expected to inherently function as a stabilizer in actinic radiation curable compositions because they are activated by heating.

Pfann et al disclose species of a complex of boron trichloride/tertiary alkyl amine corresponding to species taught by Bressler et al and species set forth in the instant claims as being latent curing agent for epoxy resins. The amine complex curing agents are use din amounts from about 0.5 to about 10 parts per hundred parts epoxy resin by weight and are said to provide exceptionally long storage-life at elevated temperatures in epoxy compositions (column 1, lines 41-48, and column 2, lines 29-44). The complexes disclosed by Pfann et al as latent curing agents would be expected to function as stabilizers because the curing agents do not effect curing at elevated temperatures below curing temperatures.

It would have been obvious to one skilled in the art at the time of the invention to select boron trihalide/amine complexes to provide latent curing agents in combination with a photocatalyst in a cationically curable composition, as taught by Pfann et al in combination with Bressler et al. Bressler et al provide motivation by disclosing a dual-curable cationically curable composition in the column 13-14 embodiment. Pfann et al provide motivation by teaching that boron trichloride/tertiary alkyl amine complexes function as latent curing agents, thus providing exceptionally long storage life at elevated temperatures to cationically curable compositions.

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Bressler et al do not mention the weight % boron trihalide/amine complex to be employed in a dual curing composition. Pfann et al teach using from about 0.5 to about 10 parts per hundred parts epoxy resin by weight in a thermal curing composition. It would have been obvious to one skilled in the art at the time of the invention to reduce the amount of latent curing agent taught by Pfann et al in a thermal curing composition when using the latent curing agent in combination with a photocatalysts as taught by Bressler et al. It would further have been obvious to one skilled in the art at the time of the invention to determine the optimum amount of boron trihalide/amine complex to employ in the dual curing compositions disclosed by Bressler et al by reference to the amounts of photocatalyst and curing agents used in the examples. With respect to claims 36 and 41, It would have been obvious to one skilled in the art at the time of the invention to use two or more of the polymerizable components taught by Bressler et al. One skilled in the art at the time of the invention would have been motivated by a reasonable expectation of providing a useful radiation curable composition since both components provide cationically curable moieties.

Claims 25, 32-44, 48 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steinmann et al (5,476,748) in view of Pfann et al (3,395,121). Steinmann et al disclose epoxy-acrylate hybrid compositions comprising sulfonium salt initiators corresponding to those in applicant's claims 38-40 and polyethers corresponding to those in applicant's claims 44 and 45. Steinmann et al teach numerous epoxides, including cycloaliphatic diepoxides. Addition of stabilizers and/or polymerization inhibitors is taught in column 10, lines 17-22. Steinmann et al do not teach including a borane or trichloroboron amine or phosphine complex or an

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irontrichloride/amine complex corresponding to those set forth in the instant claims. With respect to claim 45, Steinmann et al teach the components and weight percents set forth in the instant claim except for the instantly recite stabilizer and its weight % in the composition.

Pfann et al disclose species of a complex of boron trichloride and a tertiary alkyl amine corresponding to species set forth in the instant claims as latent curing agent for epoxy resins. The amine complex curing agents are used in amounts from about 0.5 to about 10 parts per hundred parts epoxy resin by weight and are said to provide exceptionally long storage-life at elevated temperatures in epoxy compositions (column 1, lines 41-48, and column 2, lines 29-44). The complexes disclosed by Pfann et al as latent curing agents would be expected to function as stabilizers because the curing agents do not effect curing at elevated temperatures below curing temperatures.

It would have been obvious to one skilled in the art at the time of the invention to employ the complex of boron trichloride and a tertiary alkyl amine disclosed by Pfann et al as stabilizer in the compositions disclosed by Steinmann et al. Steinmann et al provide motivation by teaching that stabilizers or polymerization inhibitors can be included in the disclosed compositions. Pfann et al teach that the disclosed complex of boron trichloride and a tertiary alkyl amine curing agents provide exceptionally long storage life in thermally curable compositions comprising epoxy resins. One skilled in the art at the time of the invention would have been motivated by a reasonable expectation of providing hybrid dual curable compositions as taught by Steinmann et al with an additional thermal curing mechanism by including a latent curing agent providing a long storage life, as taught by Pfann et al. One skilled in the art at the time of the invention would have been motivated by a reasonable expectation that the latent

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curing agent taught by Pfann et al would not be activated before a substantial amount of heat was generated by the radiation curing taught by Steinmann et al because Pfann et al teach that the curing agents do not effect curing at elevated temperatures below curing temperatures and would then provide an additional cure mechanism.

Allowable Subject Matter

Claim 45 is allowable. It is suggested that applicant amended the claim to clearly set forth the total weight that the recited weight percents are based upon. Steinmann et al disclose the composition recited in instant claim 45 except for addition of one of the component (D) stabilizers recited in the instant claim. Steinmann et al teach adding a stabilizer but do not mention any specific stabilizers. Applicant has presented comparative data in the instant specification for Examples 7-17. The data summarized in Table 6 shows that addition of a stabilizer from the recited Markush Group in the recited weight percent based on the total weight of components (A) through (G) compared with higher weight percents results in improved storage stability.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to /Susan W. Berman/ whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SB
10/28/2008

/Susan W Berman/
Primary Examiner
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